

CLAIMS

1. A coding system comprising:
  - coding means for coding an input code string to an error correcting/detecting code comprising an information bit and a check bit; and
  - code string assembling means for inserting a synchroni-zation code into any one of a plurality of predetermined synchronization code inserting positions in an output code string, for arranging said information bit at an optional position in said output code string, and for arranging said check bit at a position other than said synchronization code inserting positions in said output code string to assemble said output code string.
2. A decoding system comprising:
  - synchronization code detecting means for detecting a synchronization code at a plurality of predetermined synchronization code inserting positions on the basis of a code string, which is coded to an error correcting/detect-ing code comprising an information bit and a check bit;
  - code string resolving means for resolving said code string to extract said information bit of said error correcting/detecting code and said check bit of said error correcting/detecting code arranged at a position other than said synchronization code inserting positions; and
  - decoding means for receiving said information bit and said check bit extracted by said code string resolving means to decode said error correcting/detecting code.
3. A coding system comprising:
  - code string transforming means for transforming an input code string other than synchronization codes arranged at a plurality of predetermined synchronization code inserting positions in an output code string so that a humming distance from said synchronization code is equal to or greater than a predetermined value;

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coding means for coding a code string transformed by said code string transforming means, to an error correcting/detecting code comprising an information bit and a check bit; and

code string assembling means for inserting a synchro-nization code into any one of a plurality of predetermined synchronization code inserting positions in said output code string, for arranging said information bit at an optional position in an output code string and for arranging said check bit at a position other than said synchronization code inserting positions in said output code string to assemble said output code string.

4. A decoding system comprising:

synchronization code detecting means for detecting a synchronization code at a predetermined synchronization code inserting position on the basis of a code string, which is coded to an error correcting/detecting code comprising an information bit and a check bit and into which the synchronization code;

code string resolving means for resolving said code string to extract said information bit of said error correcting/detecting code and said check bit of said error correcting/detecting code arranged at a position other than said synchronization code inserting position;

decoding means for receiving said information bit and said check bit extracted by said code string resolving means to decode said error correcting/detecting code; and

code string transforming means for transforming a code string other than said synchronization code, which is transformed so that a humming distance from said synchronization code in said code string decoded by said decoding means is equal to or greater than a predetermined value and which exists at said synchronization code inserting position, into the original code string.

5. A coding system comprising:

coding means for coding an input code string to an error correcting/detecting code;

- synchronization code inserting means for inserting a synchronization code into said code string; and

determining means for determining the number of bits an information to be coded to an error correcting/detecting code immediately before said synchronization code in said code string,

said coding means coding said error correcting/detecting code immediately before said synchronization code, using a degenerate code, which is adaptively degenerated on the basis of the number of bits determined by said determining means.

6. A decoding system comprising:

decoding means for decoding a code string, which is coded to an error correcting/detecting code and into which a synchronization code is inserted;

synchronization code detecting means for detecting said synchronization code in said code string; and

determining means for determining the number of bits of an information, which is coded to an error correcting-/detecting code immediately before said synchronization code in said code string detected by said synchronization code detecting means,

said decoding means decoding by identifying whether said error correcting/detecting code immediately before said synchronization code is a degenerate code on the basis of the determined result of said determining means.

7. A coding system comprising:

coding means for coding a code string containing kinds of input information to an error correcting/detecting code; and

switching means for switching the kind of said error correcting/detecting code in accordance with the kinds of said input information in said code string.

8. A decoding system comprising:

decoding means for decoding a code string, which is coded to a different kind of error correcting/detecting code in accordance of the kind of information, to generate the original information; and

means for determining the kind of said error correct-ing/detecting code on the basis of the kind of information generated by said decoding means, to inform said decoding means.

9. A coding system comprising:

code string transforming means for transforming an input code string other than synchronization codes, which are arranged at a plurality of predetermined synchronization code inserting positions in an output code string and in intervals of a predetermined number of bits before and after the predetermined synchronization code inserting positions in an output code string, so that a humming distance from said synchronization code is equal to or greater than a predetermined value;

coding means for coding a code string transformed by said code string transforming means, to an error correct-ing/detecting code comprising an information bit and a check bit; and

code string assembling means for inserting a synchronization code into any one of a plurality of predetermined synchronization code inserting positions in said output code string, for arranging said information bit at an optional position in said output code string, and for arranging said check bit at a position other than said synchronization code inserting positions in said output code string to assemble said output code string.

10. A decoding system comprising:

synchronization code detecting means for detecting a synchronization code at a predetermined synchronization code inserting position and in an interval of a

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decoding means for receiving said information bit and said check bit extracted by said code string resolving means to decode said error correcting/detecting code; and

code string transforming means for transforming a code string other than said synchronization code, which is transformed so that a humming distance from said synchronization code in said code string decoded by said decoding means is equal to or greater than a predetermined value and which exists at said synchronization code inserting position and in an interval of a predetermined number of bits before and after said synchronization code inserting position, into the original code string.

11. A coding system comprising:

multiplexing means for multiplexing kinds of compressed codes, which are obtained by compression coding an input signal, to produce a multiplexed code string; and

code string assembling means for inputting said multiplexed code string to assemble an output code string,

said code string assembling means inserting a synchronization code into any one of a plurality of periodically predetermined synchronization code inserting positions in said output code string.

12. A coding system comprising:

    multiplexing means for multiplexing kinds of compressed codes, which are obtained by compression coding

an input signal, to produce a multiplexed code string; and  
code string assembling means for inputting said  
multi-plexed code string to assemble an output code string,  
said code string assembling means inserting a  
synchro-nization code into any one of a plurality of  
periodically predetermined synchronization code inserting  
positions in said output code string, and suitably  
inserting a stuffing bit into said output code string.

13. A coding system comprising:

multiplexing means for multiplexing kinds of  
compressed codes, which are obtained by compression coding  
an input signal, to produce a multiplexed code string; and  
code string assembling means for inputting said  
multi-plexed code string to assemble an output code string,  
said code string assembling means predetermining a  
plurality of synchronization code inserting positions  
arranged periodically in said output code string, inserting  
an information indicating a boundary of said multiplexed  
code string, and inserting a synchronization code into any  
one of said plurality of synchronization code inserting  
positions.

14. A coding system as set forth in any one of claims 11  
through 13, wherein said multiplexing means multiplexes a  
compressed code, which is compression coded for each of  
frames or segments of the frames of an input image signal,  
for each of said frames or said segments of the frame, and  
wherein said code string assembling means inserts a  
synchronization code into a synchronization code inserting  
position immediately before or after the end portion of  
each synchronizing unit multiplexed for each of said frames  
or said segments of the frames of said multiplexed code  
string.

15. A coding system as set forth in any one of claims 11  
through 13, which further comprises code string

transforming means for transforming a code string other than said synchronization code, which is arranged at said synchronization code inserting position in said output code string, so that a humming distance from said synchronization code is equal to or greater than a predetermined value.

16. A decoding system comprising:

synchronization code detecting means for detecting a synchronization code in an output code string;

demultiplexing means for demultiplexing on the basis of the position of the synchronization code detected by said synchronization code detecting means from said input code string, to produce a compressed code string; and

decoding means for decoding said compressed code to output a reconstructed signal,

said synchronization code detecting means detecting said synchronization code at a plurality of periodically predetermined synchronization code inserting positions in said input code string.

17. A decoding system as set forth in claim 16, which further comprises code string transforming means for transforming a code string other than said synchronization code, which is transformed so that a humming distance from said synchronization code is equal to or greater than a predetermined value at said synchronization code inserting position of said input code string, into the original code string.

18. A coding system comprising:

code string assembling means for inserting a synchronization code into any one of a plurality of periodically predetermined synchronization code inserting positions in an output code string, and for suitably inserting, into said code string, a stuffing bit, which is able to be uniformly decoded in a backward direction of

said output code string.

19. A coding system as set forth in claim 18, wherein said code string assembling means inserts said stuffing bit immediately before any one of said plurality of synchronization code inserting positions in said output code string.

20. A decoding system comprising:

decoding means for decoding an input code string, in which a synchronization code is inserted into any one of a plurality of periodically predetermined synchronization code inserting positions and into which a stuffing bit, which is able to be uniformly decoded in a backward direction, is suitably inserted; and

error detecting means for detecting an error in said input code string by comparing a decoding end position of a code string immediately before said stuffing bit, which is decoded by said decoding means, with a starting position of said stuffing bit.

21. A decoding system as set forth in claim 20, wherein said stuffing bit is inserted immediately before any one of said plurality of synchronization code inserting positions in said input code string.

22. A decoding system as set forth in claim 19, wherein said decoding means decodes a code string immediately before said stuffing bit in a backward direction from a starting position of said stuffing bit.

23. A coding system comprising:

code string assembling means for inserting a synchro-nization code into any one of a plurality of periodically predetermined synchronization code inserting positions in an output code string, and for suitably inserting, into said code string, a stuffing bit, which is able to be uniformly decoded in a backward direction of



said output code string and whose humming distances from said synchronization code and a part thereof are equal to or greater than a predetermined value.

24. A coding system as set forth in any one of claims 18 through 23, wherein said stuffing bit is arranged immediately before said synchronization code.

25. A decoding system comprising:

decoding means for decoding an input code string, in which a synchronization code is inserted into any one of a plurality of periodically predetermined synchronization code inserting positions and into which a stuffing bit is suitably inserted, said stuffing bit being able to be uniformly decoded in a backward direction, and the humming distances from said synchronization code and a part thereof being equal to or greater than a predetermined value; and

error detecting means for detecting an error in said input code string by comparing a decoding end position of a code string immediately before said stuffing bit, which is decoded by said decoding means, with a starting position of said stuffing bit.

26. A decoding system as set forth in any one of claims 20, 22 and 25, wherein said stuffing bit of said input code string is arranged immediately before said synchronization code.

27. A coding system as set forth in any one of claims 11 through 13, wherein said multiplexing means produces a multiplexed code string by multiplexing said compressed code string for each of a plurality of layers, and said code string assembling means inputs said multiplexed code string to add a synchronization code to at least a part of said plurality of layers to produce an output code.

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28. A coding system as set forth in claim 27, wherein said code string assembling means causes said synchronization codes to have different lengths in a part or all of said plurality of layers.

29. A coding system as set forth in claim 27 or 28, which further comprises code string transforming means for transforming a code string other than said synchronization code in a part or all of layers, to which said synchronization code of said output code string is added, so that a humming distance from said synchronization code is equal to or greater than a predetermined value.

30. A coding system as set forth in claim 29, which further comprises code string transforming means for transforming a code string other than said synchronization code in a part or all of layers, to which said synchronization code of said output code string is added, so that a humming distance from a synchronization code, which has a shortest length of synchronization codes having different lengths, is equal to or greater than a predetermined value.

31. A decoding system as set forth in claim 16, wherein said input code string comprises a multiplexed code string, which is multiplexed for each of a plurality of layers, a synchronization code being added to at least a part of said plurality of layers.

32. A decoding system as set forth in claim 31, which further comprises code string transforming means for transforming a code string other than said synchronization code, which is transformed so that a humming distance from a synchronization code, which has a shortest length of synchronization codes having different lengths in a part or all of added layers, is equal to or greater than a predetermined value.

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